R004-P09
ポスター 4 ：11/26　AM1/AM2 （9:00-12:00）

東南極，リュツォ・ホルムス湾沿岸域のスカレビークハルセン地域に分布するリュツォ・ホルム岩体に対する古地磁気解析

#石川 尚人 [1)], 鴻上 慶一郎 [1)]
[(1] 地球システム・富山大

Paleomagnetic analyses on the Lutzow-Holm Complex at Skalevikshalsen in the coastal area of Lutzow-Holm Bay, East Antarctica

#Naoto Ishikawa[1)], Kei-ichiro Koukami[1)]
[(1]Dept. Earth System Science, Faculty of Sustainable Design, University of Toyama

East Antarctica is one of key cratons in the formation history of supercontinents during the Earth history. Although East Antarctica had been considered to behave as a single craton in the period from the break-up of Rodinia to the formation of Gondwana continent, tectonic blocks belonging to other cratons of Gondwana members have been suggested in East Antarctica, and East Antarctica craton has been considered to have formed during the formation process of the Gondwana continent at about 550-500 Ma (e.g., Boger, 2011). The Lutzow-Holm Complex (LHC), exposing sporadically along the coast of Enderby Land between longitudes 39ºE and 45ºE in East Antarctica, is a metamorphic belt of amphibolite to granulite facies. The LHC provides geochronological data of about 500 Ma, indicating that the LHC had suffered the Pan-African orogenic event related to the amalgamation of Gondwana members. The number of paleomagnetic data has been still rare from the LHC as well as East Antarctica, and previous paleomagnetic data from East Antarctica has supported the amalgamation event. Paleomagnetic analyses has been performed on the LHC re-examine tectonic movements in East Antarctica during the amalgamation process, and paleomagnetic results from Skalevikshalsen (SVH) in the southern coastal area of Luzow-Holm Bay will be presented.

The metamorphic grade of the LHC decreases progressively eastward from granulite to amphibolite facies. Based on protolith ages by U-Pb dating analyses, geological subdivisions are proposed in the LHC (Dunkley at al., 2020). SVH is included in SKV unit, located north of RVG unit including Rundvagshetta (RH) in the southernmost area of Luzow-Holm Bay, which shows the highest metamorphic grade. Samples for paleomagnetic analyses were collected at 27 sites of granitic gneisses (Grgg: 11 sites), granodioritic gneisses (Gdg: 13 sites) and granodioritic dikes (3 sites).

Progressive thermal demagnetization analyses provided characteristic remanent magnetic components (ChRMs) carried by magnetite, which were isolated in high temperature levels between 500 and 590ºC, from samples at 4 sites of Grgg and 7 sites of Gdg. Mean directions of Grgg and Gdg were consistent, and an over-all mean of the 11 sites (D=334.8º, I=63.7º, alpha-95=2.6º) was regarded as a characteristic paleomagnetic direction from SVH.

A virtual geomagnetic pole (VGP) of the ChRM from SVH is close to VGPs of the ChRM s from RH in RVG unit, Langhovde (LH in LHV unit) and Ongle Islands (OG in LHV and EOG units) in the LHC, and is located close to mean paleomagnetic poles of 510 and 500 Ma in the synthetic apparent polar wonder path for East Antarctica (East Gondwana) proposed by Torsvik et al. (2008). According to geochronologic data of RH (518 Ma of zircon U-Pb age and 500 Ma of hornblende K-Ar age), it is implied that the ChRM of SVH, as well as the ChRMs of RH, LH and OG, was acquired at 510-500 Ma in the cooling process from the peak metamorphic stage in the LHC associated with the formation of East Antarctica. It may be suggested that no significant differential tectonic movements have undergone among the subdivided units of the LHC in the coastal region of Luzow-Holm Bay since the formation of East Antarctica.